

REMARKS

Claims 19-23, 25-35, 44-45, and 47-56 are now pending in the application. Claim 19 is amended herein to include the subject matter of claim 46. Claim 29 is amended herein to be in independent form. Claim 45 is amended herein. Claim 46 is cancelled herein. Claims 47, 49, and 52 are amended herein to change their dependency due to the cancellation of claim 46. Claim 50 is amended herein. Support for the amendment to the claims can be found throughout the specification and in Figure 1. No new matter is added. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

INTERVIEW SUMMARY

The Examiner is respectfully thanked for the Telephonic Interview of January 3, 2007. During the Interview no exhibits were given nor any demonstrations conducted. The rejection of claim 45 relative to the use of the term "selective" as opposed to "intermittent" was discussed. The rejection of claim 29 relative to the teachings of the Harada et al. reference was also discussed.

SPECIFICATION

The specification stands objected to for certain informalities. Applicant has amended the specification according to the Examiner's suggestion. Therefore, reconsideration and withdrawal of this objection are respectfully requested.

REJECTION UNDER 35 U.S.C. § 112

Claim 50 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicant regards as the invention. This rejection is respectfully traversed. Notwithstanding, claim 50 is amended herein to indicate that the isolation prevents fluid communication between the cathode side of the electrolyzer and the interior cavity. As such, it is believed that the instant rejection is now rendered moot and withdrawal of the instant rejection is requested.

REJECTION UNDER 35 U.S.C. § 103

Claims 19-23, 25-35, 44, 45, and 56 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Harada et al. (U.S. Pat. No. 5,690,797) in view of Sioli (U.S. Pat. No. 4,758,322). This rejection is respectfully traversed.

Claim 19 is amended herein to include the subject matter of objected to claim 46. As such, it is respectfully submitted that claim 19 is now in condition for allowance. Claims 20-23, 25-28, 30-35, and 44 all depend from claim 19 and, therefore, for at least this same reason are also patentable. Thus, withdrawal of the instant rejection is requested.

Claim 29 is amended herein to be in independent form. Claim 29 is patentable over the Harada et al. reference because the Harada et al. reference fails to teach, suggest, or provide motivation to one skilled in the art to supply pressurized water from a pressurized water source to the interior cavity based on a pressure in the interior

cavity as called for in claim 29. Specifically, claim 29 calls for “wherein said pressurized water source selectively supplies said pressurized water based on said pressure in said interior cavity.”

In contrast to the subject matter called for in claim 29, the Harada et al. reference does not teach, suggest, or provide motivation to supply pressurized water to vessel 7 based upon a pressure in interior cavity of vessel 7. Rather, the Harada et al. reference specifically teaches that water is added to vessel 7 to achieve a desired water level and to maintain the water level substantially constant. If the water level deviates from a predetermined level or range, additional water is added or the operation of the electrolyzer 1 therein is ceased by cutting power supply to the electrolyzer. See at least column 10, lines 33-41 and 50-63; column 12, lines 1-3; column 13, line 54 – column 14, line 5; column 14, lines 27-37 and Figure 2 of the Harada et al. reference. Thus, the Harada et al. reference specifically teaches the addition of water to vessel 7 to maintain the water level within a predetermined range and, preferably, at a constant level during the operation of electrolyzer 1. The Harada et al. reference does not make any reference to the supplying of water by pump 9 based on a pressure in vessel 7 or pump 9 being utilized to maintain or establish a pressure within vessel 7.

Rather, the Harada et al. reference specifically teaches that the pressure in vessel 7 is achieved through the electrolysis process and is operated to maintain a pressure differential between the anode and cathode sides of electrolyzer 1 within a predetermined value to avoid damage. Specifically, the Harada et al. reference discloses that the oxygen and hydrogen gases that accumulate in their respective spaces increase the pressure therein with the progress of the electrolysis within the

electrolyzer 1. Gas pressure sensors 29, 45 are utilized to monitor the oxygen and hydrogen gas pressures and, based on those values, either supply the oxygen and/or hydrogen to a downstream component (when a suitable operating pressure is achieved) or leak one of the gases to maintain the pressure differential between the gases below the predetermined threshold. Preferably, the hydrogen and oxygen pressures are maintained substantially equal to one another. If problems occur in the pressure levels, operation of the electrolyzer 1 can be terminated by adjusting the DC power supplied to the electrolyzer. See at least column 12, line 32 – column 13, line 42 and Figure 2 of the Harada et al. reference.

Thus, one skilled in the art looking at the Harada et al. reference would be taught and motivated to maintain a substantially constant water level in vessel 7 during operation of electrolyzer 1 and to operate the electrolyzer to achieve a desired pressure in vessel 7 and gas/liquid separator 32. The detected pressures are utilized to ascertain when a sufficient pressure is achieved to allow the gases to be supplied to downstream components, to monitor a pressure differential, and to command operation of electrolyzer 1 to achieve the desired pressures. The Harada et al. reference, however, does not motivate one skilled in the art to supply pressurized water to vessel 7 based upon the pressure in vessel 7. Accordingly, for at least this reason it is respectfully submitted that the Harada et al. reference does not provide any teaching, suggestion, or motivation to supply pressurized water to the interior cavity based upon the pressure in the interior cavity as called for in claim 29. Thus, for at least this reason it is respectfully submitted that claim 29 is non-obvious and patentable over the prior art of record and withdrawal of the instant rejection is requested.

Amended claim 45 is non-obvious and patentable over the Harada et al. reference in view of the Sioli reference because neither reference, either singularly or in combination, teach, suggest, or provide motivation to operate a pump to generate a continuous flow of pressurized water through the anode side of an electrolyzer and an intermittent flow of pressurized water through the cathode side of the electrolyzer as called for in claim 45. Specifically, claim 45, as amended herein, calls for “operation of said pump generating a continuous flow of pressurized water through said anode side of said electrolyzer and an intermittent flow of pressurized water through said cathode side of said electrolyzer.”

In contrast to the subject matter of claim 45, the Harada et al. reference discloses the use of a pump 16 to supply a flow of water from the interior of pressure vessel 7 to the anode compartment of electrolyzer cell 1 through communication port 2. See at least column 9, lines 55-65 of the Harada et al. reference. The Harada et al. reference does not appear to teach, suggest, or disclose the supplying of pressurized water from the pump to the cathode compartment, as called for in claim 45, much less the supplying of an intermittent flow. Furthermore, the Sioli reference also does not provide any teaching, suggestion, or motivation to have the pump supply a continuous flow of pressurized water through the anode side of the electrolyzer and an intermittent flow of pressurized water through the cathode side of the electrolyzer. Rather, the Sioli reference appears to merely disclose the generating of a continuous flow of water through both the anode and cathode sides.

Thus, for at least these reasons it is respectfully submitted that neither the Harada et al. or the Sioli reference, either singularly or in combination, teach, suggest, or provide motivation to have the pump generate a continuous flow of pressurized water through the anode side and an intermittent flow of pressurized water through the cathode side as called for in claim 45. Accordingly, withdrawal of the instant rejection and allowance of claim 45 is requested.

ALLOWABLE SUBJECT MATTER

The Examiner states that claims 46-49 and 51-55 would be allowable if rewritten in independent form. The Examiner is respectfully thanked for indicating the allowability of these claims if written in independent form. As stated above, Applicant has amended claim 19 to include the subject matter of claim 46 and, accordingly, it is respectfully submitted that claim 19 is patentable and allowance of claim 19 is requested.


CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the

Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: January 8, 2007

By: 
Jeffrey H. Urian, Reg. No. 46,232

CORRESPONDENCE ADDRESS:
Charles Ellerbrock, Esq.
General Motors Corporation
Legal Staff - Mail Code 482-C23-B21
PO Box 300 - 300 Renaissance Center
Detroit, Michigan 48265-3000
Ph: 313-665-4717
Fax: 313-665-4976

JHU/ps